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WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

June 23, 2010

TO: Internal File

THRU: James D. Smith, Permit Supervisor JDS 23 June 2010

FROM: April A. Abate, Environmental Scientist II AAA 6-23-2010

RE: 2009 Fourth Quarter Water Monitoring, Plateau Mining Corporation (PMC), Willow Creek Mine, C/007/0038-WQ09-04 Task ID #3449

The Willow Creek Mine is in reclamation. The mines have been closed and sealed. The disturbed areas around the portals have been regraded and seeded. The most recent surface operations took place in Willow Creek Canyon, about a mile from the junction between U.S. Highway 6 and State Highway 191. The reclaimed area in Crandall Canyon is also part of the Willow Creek permit area. Crandall Canyon is presently in the process of obtaining Phase I Bond Release approval from the Division.

There are no ground water sites monitored during the reclamation phase.

1. Was data submitted for all of the MRP required sites? YES ☒ NO ☐

Under the reclamation plan, surface water monitoring is required for sites listed on Table 4.7-2 and shown on Map 15.

Springs- There are no springs monitored during the reclamation phase.

Streams- There are six surface water-monitoring sites:
B3N (Willow Creek above power plant),
B-5 (Price River below processing plant above Willow Creek),
B-6 (Price River above coal processing plant),
B25 (Crandall Canyon Creek),
B26 (lower reach of Crandall Canyon)
B151 (Willow Creek – 3 miles above Willow Creek Mine)

The reclamation sampling water quality list is presented in Section 13, p. 28. Sampling is conducted quarterly. PMC tries to monitor the sites within a two week period from March 15th, June 10th, September 5th and November 30th to attempt to

collect data that coincides with first thaw, spring high flow, end of summer low-flow and last sample before freeze-up.

All required stream sampling locations were monitored for the quarter on November 30 and December 1, 2009. No flow was reported from the Crandall Canyon sampling points (B25 and B26).

Wells- There are no operational monitoring wells.

UPDES- The mine has been reclaimed and as a result, there are no currently active Utah Pollutant Discharge Elimination System (UPDES) monitoring locations at the site.

2. Were all required parameters reported for each site? YES ☒ NO ☐

Dissolved oxygen readings at sample locations B3N and B151 were reported manually during the 4th quarter 2009 at 7.57 and 7.53, respectively.

3. Were any irregularities found in the data? YES ☒ NO ☐

Most of the reliability checks performed on the data with respect to the conductivity measurements seemed to be considerably out of acceptable ranges. In general, reliability checks for total dissolved solids (TDS) relative to measured conductivity show a TDS result that is between 55 – 75% of the conductivity value. All of the TDS results for the stream samples this quarter measured relative to the conductivity readings exceeded this range. In addition to that, the values of conductivity divided by total cations (meq) should equal a value in the acceptable range between 90-110. All surface water samples analyzed this quarter indicated results in the 40s, considerably lower than the 90-110 acceptable ranges.

Date	ID#	Sample Location	T-Cats	TDS	Cond(FLD)	TDS/Conductivity	Conductivity/Cations
			meq/l	mg/l	umhos/cm	>0.55 - <0.75	>90 - <110
12/1/2009	B151	WILLOW CK 3 MILES AB WILLOW CK MINE	14.42	792	650	**1.22**	**45**
12/1/2009	B3N	WILLOW CK AB POWER PLANT	15.82	836	650	**1.29**	**41**
12/1/2009	B5	PRICE R BL PROCESSING PLANT AB WILLOW CK	6.04	301	266	**1.13**	**44**
12/1/2009	B6	PRICE R AB COAL PROCESSING FACILITY	6.14	300	270	**1.11**	**44**

Meq= milliequivalent mg/L=milligrams per liter FLD = Field

A possible reason for these irregularities is the reliability of the readings from the conductivity meter. The data indicate that conductivity measurements were collected in the field and not analyzed by the laboratory.

TDS is a recognized pollutant for the Price River Watershed. TDS standards for this section of the Price River Watershed are set at 1,700 mg/L based on the Utah Administrative Code Rule R317-2. Stream samples collected continue to remain well below this standard.

Calcium, magnesium and hardness values were outside of two standard deviations for stream samples B3N and B151 this quarter. The Division verified the calculation for total hardness using calcium and magnesium values for each sample using the following formula*:

*Total Hardness in mg/L CaCO3=Ca2+ (mg/L) * 100.08/40.08 + Mg3+ (mg/L) * 100.08/24.31*

The results indicated that this calculation yielded the same results as what was reported by the laboratory for total hardness in mg/L CaCO3.

4. On what date does the MRP require a five-year resampling of baseline water data.

Baseline data were collected at the beginning of mining operations for a two-year period; however routine 5-year sampling is not specified in MRP. The Division recommends baseline water quality parameter sampling at each five-year renewal period.

5. Based on your review, what further actions, if any, do you recommend?

The Division recommends that the Permittee resume a laboratory analysis of samples for conductivity and dissolved oxygen in addition to performing routine maintenance and calibration checks on the instrument being used in the field to collect these readings.

*Equation for total hardness taken from Water Quality Interpretation, Chapter 4, Page 75, A.W. Hunslow, 1995.